

**ABSTRACT**

5                   **Data Storage Method for use in a**  
                  **Magnetoresistive Solid-state Storage Device**

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10       A magnetoresistive solid-state storage device (MRAM)  
      performs error correction coding (ECC) of stored  
      information. Since currently available MRAM devices are  
      subject to physical failures, data storage arrangements  
      are described to minimise the affect of those failures on  
      the stored ECC encoded data, including storing all bits of  
15   each symbol in storage cells 16 in one row 12 (Figure 3),  
      or in at least two rows 12 but using storage cells 16 in  
      the same columns 14 (Figure 4). Sets of bits taken from  
      each row 12 are allocated to different codewords 204  
      (Figure 5) and the order of allocation can be rotated  
20   (Figure 6). A second level of error checking can be  
      applied by adding a parity bit 226 to each symbol 206  
      (Figure 7).

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[Figure 1]